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SYNOPSIS OF THE ECONOMIC SYRPHIDAE OF JAPAN. (Pt. II.)

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日本有用食蚜蠅科の分類* (第二)

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Asarcina MACQ.

MACQUART — Dipt. Exot. II, pt. I, p. 137, 1840.

Ancylosyrphus BIGOT, 1882.

Proboscis narrow and long, somewhat longer than the height of the head, palpi small; oral opening narrow, in the middle being constricted.

Face beneath conically produced, the facial tubercle in the middle somewhat keel-like elevated. Vertex in the female much narrower than the half breadth of the front between the antennae. Antennae small, the 3rd joint blunt conical, the arista from near the base, the first joint scarcely shorter than the 2nd, with many short bristles, the 3rd as long as the first and 2nd taken together, the arista near the base, longer than the antenna itself, finely pubescent. Compound eyes bare. Thorax on the sides yellow striped. Wings broad, the 3rd longitudinal vein opens before the apex, in the middle much curved into the first posterior cell; the bend of the 4th vein without appendage (only a fold may be seen); the cross-vein at about $\frac{1}{3}$ of the discoidal cell near the base. Abdomen on the sides scarcely ridged; hypopygium on each side with a hook-like projection. The larvae of this genus are not yet known, but they are most probably aphidivorous. We have in Japan and Formosa only two following species.

1. Wings brownish infuscated, thorax in the disk brownish pubescent.
... .. **fumipennis** SACK.
2. Wings grayish or grayish yellow, hyaline, thorax in the disk yellow pubescent **ericetorum** F.

1. **Asarcina ericetorum** F. (Pl. IV, fig. 1, 1a.)

Syrphus ericetorum F. Ent. Syst. IV, 287, 34 (1794).

Syrphus Salviae F. Ent. Syst. IV, 306, 105 (1794).

Didea Macquarti DOL. Nat. Tijds. Ned. Ind. XIV, 408 Pl. 10, f. 1 (1856).

Syrphus incisuralis MACQ. Dipt. exot. Supl. 5, p. 94, 56 (1855).

Ancylsyrphus Salviae BIGOT. Bull. ent. Fr. P. LXVIII (1882).

Syrphus porcinus COQ. Proc. Nat. Mus. U.S.A. p. 322 (1898).

Asarcina ericetorum var. **formosae** BEZZ, Ann. Nat. Mus. Hung. 6, p. 495 (1908).

Yellow. Face whitish yellow, vertex fuscous, on the sides narrowly yellow, with black hairs. Antennae yellow, the 3rd joint on its back brownish; the antennal-process yellow, arched above by a short bluish bar; cheeks behind blackish. Proboscis black, at the apex yellowish. Thorax aeneous black, yellowish pubescent; scutellum yellow, fuscous pubescent, the hairs on the hind margin being yellowish. Wings

hyaline, somewhat grayish or yellowish gray infuscated, stigma fulvous. Halteres yellow. Abdomen yellow, with 5 narrow black bands, respectively at the hind margin of each segment, the first band being somewhat shorter than the scutellum, the 2nd segment in the middle with a narrow longitudinal stripe; all the bands becoming narrower towards the lateral margins. Venter yellow, the hind margins of the 2nd and 3rd segments narrowly fuscous. Legs fulvous, the hind tarsi at the apices infuscated.

Length — ♂ ♀ 13-15 mm.

Hab. — Hokkaido, Honshu, Shikoku, Kiushu, Formosa; China, Ceylon, Java, Sumatra, Celebes, Ternate, New-Guinea.

Very variable in the coloring of the wings and markings of the abdominal segments, and we now hesitate to make any variety of this species.

2. *Asarcina fumipennis* SACK.

SACK, Ent. Mitt. B. 11, Nr. 1, p. 3 (1913).

We have not seen this insect from Formosa, so we can not say exactly whether this species is new or a mere variety of the former species. Comparing with the description of Dr. SACK we have found that the disk of the mesonotum brownish pubescented, while in the former species yellowish, and the other characters may be seen both in the Formosan and Japanese species.

Length — 14-15 mm.

Hab. — Formosa (Yamo, Chip-chip).

Didea MACQ.

MACQUART—Suit à Buff. 1, 508 (1834).

Head semicircular, broader than the thorax. Antennae somewhat shorter than head, not compressed, much longer than the first and 2nd taken together, the 3rd joint conical, the arista nearly from the middle of the back, as long as the antenna itself, not pubescented. Face not produced, facial tubercle nearly in a level with the antennal-process. Vertex in the female somewhat narrower than the half breadth of the front between the antennae. Compound eyes bare. Proboscis short and stout, oral opening oval, narrower towards the apex. Thorax on the sides without yellowish stripe. Wings moderate, the 3rd longitudinal

vein opens near the apex, strongly curved into the first posterior cell, the cross-vein at about $\frac{1}{3}$ of the discoidal cell near the base, the bend of the 4th vein with appendage. Abdomen broad, the lateral margin of each segment distinctly ridged.

Type — **Didea fasciata** MACQ.

The larvae of this genus are not yet known, but they are most probably aphidivorous.

We have in Japan 3 following species:

Table of Species.

- | | | |
|---|-----------------------------|---|
| 1. Abdomen with 3 yellowish bands | japonica n. sp. | |
| — Abdomen with 4 yellowish bands... .. | | 2 |
| 2. Thorax bluish, the 2nd band of the abdomen in the female nearly interrupted | sachalinensis n. sp. | |
| — Thorax aeneous, the 2nd band of the abdomen in the female at the hind margin emarginated | fasciata MACQ. | |

1. **Didea fasciata** MACQ.

Didea fasciata MACQUART—Suit à Buff. I. p. 508, Pl. II, fig. II (1834); COUILLET—Proc. Nat. Mus. U.S.A. XXI, p. 323 (1898).

Enica Försteri MEIQ. Syst. Besch. Vol. VII, p. 140 (1838).

Aeneous. Face pale yellow, with or without a fuscous facial stripe. Cheeks concolorous with the face. Antennae fuscous, the 3rd antennal joint beneath yellowish; the antennal-process above with a bluish black arch, from the middle of the arch sending a fuscous stripe up to the vertex, the latter being bluish black, fuscous pubescent. Mesonotum on the sides without yellowish spots, the disk pale yellowish pubescent, mesopleura with a broad pale yellowish vertical stripe. Scutellum olivaceous yellow, fuscous pubescent, on the sides with yellowish hairs. Wings hyaline, with a pale fulvous shade, veins and stigma brownish. Halteres yellow, the stems brownish. Abdomen black, with 4 yellowish bands, of which the first and 4th bands being interrupted, the 3rd and 4th at the hind margins triangulary emarginated. Venter with 3 black bands, each in the middle anteriorly produced, the 5th segment with a fuscous spot. Legs fuscous, the anterior and middle knees, as well as tibiae yellow, the hind femur at the extreme apex and the same tibia at

the extreme base yellowish.

Length — ♂ ♀ 12-13 mm.

Hab. — Hokkaido (Sapporo), Honshu (Kyoto); Europe, Siberia; not rare.

2. *Didea sachalinensis* MATS. (n. sp.) (Pl. VI, fig. 5, 5'.)

Differs from *D. fasciata* MACQ. as follows:

♀ Bluish black, much smaller. Antennae entirely fuscous. Mesonotum shining, without any trace of longitudinal stripe, less yellowish pubescented. Scutellum with a bluish shade. Halteres yellow, with a brownish spot near the base of the knob. Abdomen black, with 4 yellowish bands, of which the first, 3rd and 4th bands being interrupted, the 2nd very deeply emarginated and nearly interrupted. The first black band of the venter nearly divided into 3 spots. The other characters are those of *D. fasciata* MACQ.

Length — ♀ 10 mm.

Hab. — Saghalien (Ohtani); 1 ♀ specimen collected by Messrs. J. ADACHI and S. ISSHIKI.

3. *Didea japonica* MATS. (n. sp.) (Pl. IV, fig. 2, 2'.)

Didea fasciata MATS. Thous. Ins. Jap. Vol. II, p. 95, Pl. XXV, fig. 15 (1904); — Journ. Coll. Agric. Vol. IV, Pt. 1. p. 78 (1911).

Aeneous. Face yellow, pale yellow pubescented, the antennal-process and facial stripe above the tubercle fuscous, cheeks along the eyes aeneous; vertex black, in the female the front with 2 black stripes, which uniting at the vertex, fuscous pubescented. Antennae fuscous, the arista yellowish. Thorax on the sides yellowish spotted, with 3 indistinct fuscous stripes; in the disk brown and on the margins yellowish pubescented. Scutellum olivaceous yellow, black pubescented. Wings hyaline, veins, except the base, and stigma fuscous. Halteres brown, the stems yellowish. Abdomen with 3 yellowish bands, the first and 3rd bands being interrupted, the 2nd band in the female entire, in the male at the hind margin almost to the middle incised, the 5th and 6th without bands; the first ventral segment with 3 black spots, the 2nd and 3rd each with a fuscous band, which being produced triangularly towards the anterior margin. Legs black, the apical halves of the first and 2nd femora, as

well as the same tibiae yellow, the hind femur at the apex and the same tibia at the base dirty yellow.

Length — ♂ ♀ 14-15 mm.

Hab. — Saghalien, Honshu; not rare.

The following syrphid is not known to us.

4. *Didea confrater* WIED.

Syrphus confrater WIED. Auss. Zweif. II. p. 120, 5 (1822).

Didea confrater SACK. Ent. Mitt. II. Nr. 1. p. 2 (1913).

♂ ♀ "Front in the male short yellowish pubescent; above the antennae with shining aeneous arch; compound eyes touch in a long line, aeneous triangle of the vertex short and broad. In the female front black, yellowish pruinose, so that in the middle a narrow black stripe may be seen; above the antennae with a black arch. Vertex aeneous, with a violet luster. Front black pubescent, not very long. In both sexes compound eyes naked. Hairs of the occiput golden yellow, on the sides pale yellowish. The first antennal joint yellow, longer than the 2nd, the 2nd and the 3rd (oval in form) brown, the latter at the lower part yellowish. Face yellow, the facial tubercle in the female somewhat infuscated; cheeks somewhat brownish pubescent. Proboscis short and stout, brown. Thorax shining, in the male aeneous, in the female dark, with a bluish shade, pleurae and sternum greenish yellow, shining; golden yellow pubescent, the hairs on the sides being longer and denser. Scutellum yellow, with a bluish shade, densely and long fuscous pubescent. Legs yellow, the hind femur externally with a brown stripe; tarsi, except the metatarsi, brown or black; in the female the brown or black parts being more extended. Wings hyaline, between the axillary and the first longitudinal vein yellow or brownish, the 3rd longitudinal vein like that of *aegrota* F. Abdomen flat, distinctly ridged, black, in the middle of the 2nd-4th segments each with a yellow band, of which the first band in the middle anteriorly and posteriorly deep emarginated, and on the sides rounded. In the female the bands narrower than in the male; the following other bands also on the sides posteriorly rounded, each reaches to the side with its anterior half part. Hairs very short and sparse, yellow or fuscous; on the side with dense standing fuscous

hairs, those on the first 2 segments very long, nearly to the middle of the 2nd segment yellow. Venter yellow, the black bands of the dorsum being visible through. Hypopygium small and very shining."

Length — ♂ ♀ 13 mm.

Hab. — Formosa (Taikokan); China, Sumatra, Ternate, Ceram, Waigoe.

The above description was made by Dr. P. SACK in the paper "Entomologische Mitteilungen" II. Nr. 1. p. 2 (1913). From the description it may not be a true **Didea**, and it may belong probably to my genus **Dideodes**.

Dideodes MATS. (n. g.)

Differs from **Didea** MACQ. as follows :

The 3rd antennal joint compressed, as long as the first and 2nd taken together, near the base at the back with a long arista, which is much longer than the antenna itself. Proboscis much longer, nearly $\frac{1}{3}$ of the height of the head, oral opening oval, narrower towards the apex. Vertex (♀) much narrower than the half breadth of the front between the antennae. Compound eyes pubescented. Wings broader and longer, the 3rd longitudinal vein opens before the apex, nearly straight or a little curved, the cross-vein at about $\frac{1}{4}$ of the discoidal cell, the bend of the 4th vein without appendage (only a fold may be seen). The lateral sides of the abdomen distinctly ridged.

Type — **Syrphus latus** COQ.

We have in Japan and Formosa the following 3 species.

Table of Species.

- | | |
|--|-------------------------|
| 1. Scutellum and abdomen black | lautus COQ. |
| — Scutellum and abdomen yellow | 2 |
| 2. Scutellum yellowish pubescented... .. | latus COQ. |
| — Scutellum brownish pubescented | formosanus MATS. |

1. **Dideoides latus** COQ. (Pl. VI, fig. 3, 3 a.)

Syrphus latus COQ., Proc. Nat. Mus. U.S.A. XXI, p. 322 (1898);

MATS., Thous. Ins. Jap. Vol. II. p. 87, Pl. XXV, fig. 1 (1904).

Yellow; mesonotum fuscous, in the male aeneous, shining. Face yellow, yellowish pubescented, vertex and upper part of the front black,

black pubescented. Proboscis brown. Compound eyes brown and grayish pubescented. Antennae fulvous, the 3rd joint on its black infuscated. Mesonotum on the sides yellow, fulvous pubescented, in the male with 3 fuscous stripes. Scutellum yellow, with yellowish hairs. Wings hyaline, yellowish, veins brown, stigma yellow, the 3rd longitudinal vein nearly straight. Halteres pale yellow. Abdomen yellow, with 7 black bands, except the first, the all being interrupted in the middle, the 2nd segment near the anterior margin with a small diamond-shaped black spot, the first, 3rd and 5th bands broader, and each nearer to the hind margin, 4th and 6th narrower and each situated at the base of each segment, lateral margins being fuscous. Venter yellow, the 2nd segment with a triangular spot, the 3rd and 4th with bands, being produced in the middle anteriorly, each on the sides sending upwardly a fuscous oblique stripe. Sternum aeneous black. Legs yellow, the hind tarsi externally brownish.

Length — ♂ ♀ 15-16 mm.

Hab. — Honshu, Kiushu; not rare.

2. *Dideodes formosanus* MATS.

Syrphus formosanus MATS. Die Schäd. u. Nütz. Ins. Zuck. Formosas p. 46, Pl. XXIX, fig. 8 ♀ (1910).

Didia formosana MATS. — Thous. Ins. Jap., Addit. Vol. II. p. 217, Pl. XVI, fig. 27 (1916).

Much resembles to *D. latus* COQ., but differs from the latter in the following characters:

- ♀ 1. Body somewhat longer and narrower.
2. Front above the antennae more densely black pubescented.
 3. Mesonotum darker, on the sides and at the hind margin with an aeneous shade.
 4. Scutellum fuscous pubescented.
 5. Abdominal bands narrower, the 2nd segment with a broad triangular spot near the base.
 6. Coxae, trochanter and apices of the femora black.

Length — ♀ 16 mm.

Hab. — Formosa (Taihoku, Tainan, Tappan).

3. *Dideodes lautus* Coq.

Syrphus lautus Coq. Proc. Nat. Mus. U.S.A. XXI. p. 323 (1898);

MATS. — Thous. Ins. Jap. II. p. 87 (1904).

Black; the front, antennae, face, and cheeks yellow; in the female the middle of the front brown, prolonged as a narrow line down to the insertions of the antennae; hairs of the front, antennae, and upper part of the face black; those on remainder of the face, the cheeks and occiput yellow; eyes brownish pubescent. Thorax aeneous black, with 3 deep black stripes, the spaces between them anteriorly grayish pruinose and a spot on the pleura in front of the wings yellowish-gray pruinose; hairs of the thorax mixed black and yellow, those at the humerus chiefly yellow; scutellum polished, bluish, its hairs being black. Abdomen opaque, the first segment and both ends of the 2nd polished bluish, the 3rd and 4th segments each marked on the anterior part with an arcuate yellow fascia, the posterior portion of the 4th and the whole of the 5th segment polished yellow; hairs of the first 3 segments, the base and sides of the 4th, black, hairs of remainder of the abdomen yellow. Legs yellow, the coxae, trochanter, bases of the femora, black. Wings hyaline yellowish, veins and stigma fulvous. Halteres yellow, calypteres brown.

Length — ♂ ♀ 16-18 mm.

Hab. — Honshu, Kiushu; not common.

Dideopsis MATS. (n. g.)

Differs from *Dideodes* MATS. as follows:

Antennae especially the 3rd joint smaller, the 3rd joint blunt conical, somewhat twice as long as the first and 2nd taken together; the arista situated near the base on its outside of the back, somewhat longer than the antenna itself. Compound eyes bare, the touched portion in the male as long as the vertex, narrow, a little narrower than the half breadth of the front between the antennae; ocelli small, the anterior ocellus widely separated from the posterior. Proboscis somewhat shorter, oral opening oblong, in the middle somewhat narrower. Wings ample, the 3rd longitudinal vein opens near the apex, distinctly curved into the first posterior cell, the cross-vein at about $\frac{1}{3}$ of the discoidal cell near the base, the bend of the 4th vein without appendage (only a fold may be seen).

Abdomen distinctly ridged on the sides.

Type — **Syrphus aegrotus** F.

We have in Formosa only one species.

1. **Dideopsis aegrotus** F. (Pl. VI, fig. 4, 4a.)

Syrphus aegrotus F. Syst. Antl. p. 243, 48 (1789).

Syrphus fascipennis MACQ., Suit. à Buff. I. 537, 9. (1834).

Didea Ellenriederi DOL. Nat. Tijdschr. Ned. Ind. XIV. 407, Pl. 10, fig. 2 (1856).

Didea aegrota SACK. Ent. Mitt. II. Nr. 1, Fig. 1. p. 1 (1913);

MATS. Thous. Ins. Jap. Addit. Vol. 11, p. 215. Pl. XVI, fig. 28 (1916).

Black, shining. Front in the male dark blue, black pubescent; face pale yellowish, grayish white pubescent, in the middle with a fuscous stripe; oral margin fuscous, in the female vertex and front black. Antennae brown, the 3rd joint beneath and the arista yellowish. Thorax long yellowish pubescent, in the disk short fuscous pubescent, before the wing-insertion on the pleura with a vertical grayish stripe. Scutellum yellow, black pubescent, on the sides with yellowish hairs. Wings hyaline, in the middle with a broad black band, at the base yellowish. Abdomen black, with 3 yellowish bands, the first band being interrupted in the middle, black pubescent; venter yellow, with 3 black bands, the 5th being entirely black. Legs black, the anterior 4 legs, except the coxae, trochanter and the bases of the femora, yellow.

Length — ♂ ♀ 11-13 mm.

Hab. — Formosa (Horisha, Kōshun); China, Java, Sumatra, Phil.

Betasyrphus MATS. (n. g.)

Head semispherical, somewhat broader than the thorax. The facial tubercle somewhat higher than the antennal-process. Antennae large, the 3rd joint conical, not compressed, much longer than the 1st and 2nd taken together; the arista nearly as long as the antenna itself, on the outer side of the back near the base. Compound eyes strongly pubescent; in the male vertex much elevated and much shorter than the touched portion of the compound eyes; in the female vertex as wide as

the half breadth of the front between the antennae. Proboscis moderately long, not longer than the height of the head, the palpi very small; oral opening oblong. Wings moderate, the 3rd longitudinal vein straight, opens near the apex, the cross-vein near the base, at about $\frac{1}{3}$ of the discoidal cell, the bend of the 4th longitudinal vein with a long appendage. Abdomen on the sides scarcely ridged. This genus resembles somewhat to **Ischyrosyrphus** BIG., but the 3rd antennal joint much differs from the latter.

Type — **Syrphus serarius** WIED.

We have in Japan the following only one species.

Betasyrphus serarius WIED. (Pl. IV, fig. 6, 6a.)

Syrphus serarius WIED. Auss. Zweifl. II. p. 128, 20 (1830); SCHIN.

—Dipt. Nov. Reis. p. 352. 37 (1868); COQ. —Proc. Nat. Mus. U.S.A.

XXI, p. 321 (1898); MATSUM. —Thous. Ins. Jap. Vol. II. p. 94,

Pl. XXV, fig. 14 (1904); SACK --Ent. Mitt. II, p. 5 (1913).

Dark brown. Face pale fulvous, with a fuscous stripe, which not reaches to the antennal-insertion, fuscous pubescent; cheeks and oral margin grayish fuscous; the antennal-process (except the apex which is yellowish), front and vertex dark bluish, in the female the front on the sides and in the middle yellowish pruinose. Antennae fuscous, the 3rd joint beneath and the base of the arista yellowish. Compound eyes in the male brownish and in the female whitish densely pubescent. Occiput dark bluish, fulvous pubescent. Thorax brownish or bluish black, with 3 fuscous stripes, pale yellowish long pubescent, on the sides yellowish. Scutellum dirty yellow, with some waxy luster, long black pubescent, on the sides yellowish. Scutellum dirty yellow, with some waxy luster, long black pubescent. Wings hyaline, with a light brownish tinge, stigma dirty yellow, veins fuscous. Calyteres pale yellowish. Halteres fuscous, at the apices yellowish. Abdomen black, with 3 narrow bands, the first band bluish, the 2nd and 3rd dirty yellow, black and yellowish pubescent. Venter shining grayish, with 2 silvery bands, in the female each segment in the middle with a fuscous spot. Legs pale brownish, coxae, trochanter and the basal halves of the femora fuscous.

Length — ♂ ♀ 11-12 mm.

Hab. — Hokkaido, Honshū, Shikoku, Kiushū, Riukiu, Formosa, Korea; China; in Hokkaido very rare, but common in Honshū and Kiushū.

Catabomba OST.

OSTEN SACKEN — Western Dipt. p. 325 (1877).

Head large, much broader than the thorax, front above the antennae broad and vaulted, the facial tubercle somewhat higher than the antennal-process; in the male the vertex much elevated, somewhat equilateral, only $\frac{1}{3}$ as long as the touched portion of the compound eyes; in the female vertex nearly as wide as the half breadth of the front between the antennae. Antennae large, the 3rd joint oval, somewhat compressed, more than twice as long as the first and 2nd taken together; the arista near the base, at about $\frac{1}{3}$ of the back, somewhat longer than the antenna itself. Compound eyes distinctly pubescent. Wings moderate, the 3rd longitudinal vein opens before the apex, distinctly curved into the first posterior cell, the cross-vein at about $\frac{1}{3}$ of the discoidal cell near the base, the bend of the 4th longitudinal vein with a short appendage. Abdomen broader than the thorax, on the lateral margin distinctly ridged, with lunular spots and not banded.

Type — *Syrphus lunatus* WIED.

We have in Japan the following 2 species.

Table of Species.

1. The lunular spots of the abdomen narrow, the first and 2nd spots near the middle of the respective segment ... *komabensis* n. sp.
- The lunular spots of the abdomen broad, the first spots near the hind margin and the 2nd near the anterior margin. *lunata* WIED.

1. *Catabomba lunatus* WIED.

WIEDEMANN — Auss. Zweifl. II. 121, p. 8 (1830).

Aeneous black. Face and front yellowish, long, fuscous pubescent, in the female face entirely and in the female only on the lower part of the face yellowish short pubescent; facial stripe pitchy brown. Antennae fuscous, the first and 3rd joints beneath pale, the arista yellowish. Proboscis fuscous, robust. Compound eyes densely brownish pubes-

cented, the touched portion in the male much longer than the vertex; in the female vertex shining bluish black; the antennal-process fuscous; cheeks grayish, with short white hairs. Thorax long brown pubescented, hairs on the sides yellowish; scutellum dirty yellow, very long, black pubescented, hairs on the sides and posterior margin pale yellowish. Wings hyaline, the 3rd longitudinal vein more curved into the first posterior cell, stigma dirty yellow, veins brownish. Halteres yellow, calypteres pale yellow. Abdomen black, with 3 interrupted yellowish bands, of which the 2nd and 3rd bands at the inner margin being rounded and upturned, touching the lateral sides with the upturned apex; the 4th and 5th segments each at the hind margin narrowly yellow; yellowish pubescented, hairs on the black parts being mostly black. Venter dirty yellow, the 2nd, 3rd and 4th segments each in the middle with a fuscous spot, the 3rd and 4th each at the hind margin and the 5th entirely, fuscous. Legs yellow, coxae, trochanter, femora, except the apices, and the middle part of the hind tibia, fuscous, apices of the tarsi brownish.

Length — ♂ ♀ 12-14 mm.

Hab. — Honshū (Nikkō), Kiushū (Kumamoto); 3 (2 ♂, 1 ♀) specimens collected by Prof. S. MATSUMURA and Mr. S. KAWAMURA.

2. *Catabomba komabensis* MATS. (n. sp.) (Pl. VI, fig. 7, a.)

♀ Bluish aeneous. Face pale yellowish, vertex black, the antennal-process and its environs pale brownish, fuscous pubescented; facial tubercle fuscous, its sides somewhat pale brownish, fuscous and the lower part of the face pale yellowish pubescented. Oral margin pale brown, cheeks grayish black. Compound eyes whitish pubescented. Thorax shining, on the sides dirty yellow, pale yellowish pubescented, on the posterior part mingling some fuscous hairs, hairs on the sides being denser and paler. Scutellum dirty yellow, with long fuscous hairs, those on the margins being pale yellowish. Wings hyaline, at the base yellowish, veins and stigma brownish. Calypteres whitish. Halteres yellow. Abdomen black, with 3 pairs of yellowish lunular spots, the first spots being nearly straight and not reaching to the lateral margin, the 2nd and 3rd on their anterior margins strongly concave, on the inner sides clavate, with their upturned apices reaching to the lateral margin; the

2nd spots near the middle and 3rd near the anterior margin of the respective segments, the 5th and 6th segments each on the hind margin narrowly yellow; pale yellowish and black pubescented, the hairs on the posterior part being mostly black. Venter yellow, each segment with a large fuscous spot. Legs yellow, coxae, trochanter, the basal halves of the femora (the hind femur except the apex fuscous), and the apices of the tarsi, as well as the middle of the posterior tibia, fuscous.

Length — ♀ 13 mm.

Hab. — Honshū (Komaba in Tokyo); 1 ♀ collected by Mr. S. HIRAYAMA.

Metasyrphus MATS. (n. g.)

Head moderately large, broader than the thorax; in the male the vertex much elevated, as long as the touched portion of the compound eyes, in the female vertex broader than the half breadth of the front between the antennae; the facial tubercle somewhat higher than the antennal-process in profile. Proboscis long, robust. Antennae large, the 3rd joint oval, somewhat compressed on its back, nearly twice as long as the first and 2nd taken together; the arista near the middle on its outer side of the back, nearly as long as the antenna itself. Compound eyes not pubescented, in the female the front side in profile nearly straight. Wings moderate, 3rd longitudinal vein distinctly curved into the first posterior cell, opens before the apex; the cross-vein at about $\frac{1}{4}$ of the discoidal cell near the base, the bend of the 4th longitudinal vein with a long appendage. Abdomen as broad as or broader than the thorax, on the lateral margin not distinctly ridged, in the female nearly always with lunular spots. We have in Japan the following 6 species.

Type — **Syrphus corollae** F.

Table of Species.

- | | |
|--|-------------|
| 1. Abdominal bands in the male, except the first, sometimes interrupted and sometimes not interrupted... | 2 |
| — Abdominal bands in the male, all interrupted ... | 3 |
| 2. Scutellum black and yellow pubescented; large species ... | |
| frequens n.sp. | |
| — Scutellum yellow pubescented; small species ... | corollae F. |

3. Abdomen distinctly broader than the thorax...**karafutonis** n.sp.
 — Abdomen as broad as the thorax or a little broader than the thorax. 4
 4. Cheeks yellowish brown, thorax in the female much narrower
 than the abdomen **arcuatus** FALL.
 — Cheeks and oral margin bluish black; the 2nd abdominal spots
 posteriorly black pubescent... .. **Kawaguchii** n.sp.
 — Cheeks grayish black, the oral margin on the upper part fuscous;
 the 2nd abdominal spots posteriorly not black pubescent ...
 **stenopus** n.sp.

1. *Metasyrphus karafutonis* MATS. (n.sp.)

Aeneous black. Face pale yellowish, with short grayish hairs; vertex aeneous black, posteriorly with a bluish shade, fuscous pubescent; front pale olivaceous; face with a brownish stripe. Cheeks aeneous, white pruinose. Antennae yellowish, on its back fuscous, the arista yellowish. Mesonotum pale yellowish pubescent; scutellum yellowish, semiopaque, brownish pubescent, on the margins with yellowish hairs, Wings hyaline, veins fuscous, stigma fulvous. Halteres yellow; calypteres pale yellowish. Abdomen oblong, with 3 pairs of yellowish lunules. of which the first pair reaches to the lateral margin with its upturned apex, the 2nd and 3rd pairs somewhat comma-shaped, clavate at their inner margins, and upturned on both ends, not reaching to the lateral margins, the 4th at the hind margin and the 5th entirely yellow, the latter in the middle with a short black band. Venter yellow, the 2nd-5th segment each with a short fuscous band in the middle. Legs yellow, coxae, trochanter and the basal halves of the femora fuscous, tarsi at the apices and the hind tarsi externally brownish.

Length — ♂ ♀ 12 mm.

Hab. — Saghalien (Motodomari, Ohtani); 2 (♂ ♀) specimen collected by the authors.

2. *Metasyrphus frequens* MATS. (n.sp.) (Pl. VI, fig. 8, a.)

♂ ♀ Aeneous black. Face pale yellow, with a fuscous stripe, pale yellowish pubescent; cheeks grayish black. Antennae fuscous, the lower surface paler; the arista pale brown, at the apex fuscous. In the

female vertex shining black, front with a brownish Λ -shaped marking, the both short fuscous pubescent. Thorax pale yellowish pubescent, on the side dirty-yellow; scutellum fulvous, in the disk fuscous pubescent, on the margins with longer pale yellowish hairs. Calypteres and halteres pale yellowish. Wings hyaline, stigma fulvous, veins fuscous, those on the costa being brownish. Abdomen black, in the male with a bluish tinge, with 3 pairs of yellow lunules, the 2nd and 3rd bands often not being interrupted, not enlarged at the inner margin, reaching to the lateral margins; the first pair nearly straight, the 2nd somewhat curved at the anterior margin, the 3rd upturned only on the outer margin, the both situated nearer to the anterior margins, the 4th and 5th segments each on the hind margin narrowly yellow, the 5th on each side with a triangular yellow spot, black and yellowish pubescent. Venter waxy yellow, each segment with a large quadrate fuscous spot. Legs yellowish, coxae, trochanter, the basal halves of the femora (the hind femur largely fuscous except the apex), the middle of the hind tibia and the apices of the tarsi, fuscous.

Length — ♂ ♀ 11-12 mm.

Hab. — Hokkaidō, Honshū (common), Kiushū.

3. *Metasyrphus Kawaguchii* MATS. (n. sp.) (Pl. VI, fig. 10, a.)

♂ Aeneous black. Face yellow, with an aeneous reflection, black stripe reaching to the middle, oral margin and cheeks bluish black; yellowish and brownish pubescent; front olivaceous yellow, black pubescent. Antennae brown, beneath paler, the arista brown, in the middle paler. Vertex black, occiput yellowish pubescent. Thorax yellowish pubescent, on the sides and a lateral tubercle before the scutellum dirty yellow. Scutellum waxy dirty yellow, black pubescent, hairs on the sides and hind margin being yellowish. Wings hyaline, veins fuscous, stigma brown. Calypteres and halteres pale yellowish. Abdomen nearly as broad as the thorax, black, with 3 pairs of lunules, the first spot being nearly straight, not reaching to the lateral margin, the 2nd and 3rd each at the anterior margin distinctly concave, the both not reaching to the lateral margin; the 4th and 5th segments each on the hind margin narrowly yellow; yellowish and black pubescent.

Venter pale yellow, the 2nd, 3rd and 4th segments each with a chestnut-like fuscous spot, the 5th fuscous. Legs fuscous, the apices of the femora, the tibiae as tarsi largely yellow, the hind legs largely fuscous, only at the extreme apex of the femur and both ends of the tibia yellowish.

Length — 9 mm.

Hab. — Saghalien (Motodomari); only 2 (♂♂) specimens collected by the authors.

Differs from the allied species *M. corollae* F., by the black hairs of the scutellum.

4. *Metasyrphus arcuatus* FALL.

Syrphus arcuatus FALL. Dipt. suect. 42. 11 (1816); — Meig. Syst. Besch. III, 302, 42; Zett. Ins. lapp. 598, 2; SCHIN. — Faun. Austr. Dipl. Vol. I. p. 305 (1862); MATS. — Cat. Benef. Ins. Jap. p. 49 (1908).

♂ Bluish black. Face pale yellow, with bluish luter, facial tubercle and the upper part of the oral margin brownish, cheeks dirty yellow; pale yellowish, but on the front black pubescent. Antennae fuscous, beneath yellowish, the arista brownish. Vertex black, fuscous pubescent. Thorax pale yellowish pubescent, on the sides and a lateral tubercle before the scutellum dirty yellow. Scutellum waxy dirty yellow, black pubescent, hairs on the sides and hind margin pale yellowish. Wings hyaline, veins fuscous, stigma dirty yellow. Calypteres yellowish white, the margin and halteres yellow. Abdomen distinctly broader than the thorax, black, with 3 pairs of lunules, the first spot small, oblong, situated somewhat obliquely, being pointed at the inner margin, and situated far before the lateral margin, the 2nd and 3rd spots each on the anterior margin indistinctly concave, on the inner sides somewhat clavate and quite widely separated each other, and situated nearer to the anterior margin of the respective segments, not reaching to the lateral margin, the 4th and 5th segments each on the hind margin narrowly yellowish; yellowish and black pubescent. Venter pale yellowish, the 2nd, 3rd and 4th segments each with a brownish spot. Legs yellow, coxae, trochanter and the bases of the femora fuscous, the hind femur at the basal $\frac{2}{3}$ being fuscous.

Length — ♂ 11 mm.

Hab. — Hokkaido (Sapporo); only one ♂ specimen collected by the authors.

Compared with the European species, the Japanese one being provided with the smaller spots on the 2nd abdominal segment.

5. *Metasyrphus stenopus* MATS. (n. sp.)

Much resembles to *M. arcuatus* FALL. but differs from the latter as follows:

♂ Cheeks aeneous black, the facial stripe reaches to the middle of the face. Thorax aeneous black. Abdomen narrower, a little broader than the thorax, lunules narrower, the first spots nearly straight, somewhat narrower towards the inner margin and truncated, the 2nd spots nearly in the middle of the 3rd segment, more concave at the anterior margin; venter with 3 large rectangular fuscous spots.

Length — 11.5 mm.

Hab. — Hokkaidō (Sapporo); 1 ♂ specimen collected by Prof. S. MATSUMURA.

6. *Metasyrphus corollae* F.

Syrphus corollae F. — Ent. Syst. IV, p. 306, 106 (1792); MEIG. — Syst. Besch. III, p. 304, 46 (1822); WIED. — Auss. Zweifl. II, p. 121, 7 (1830); MACQ. — Suit. à Buff. I, p. 539, 18 (1834); COQ. — Proc. Nat. Mus. XXI, p. 321 (1896); MATS. — Thous. Ins. Jap. II, p. 90, Pl. XXV, fig. 6 (1904); SACK — Ent. Mitt. II, p. 5 (1913).

Aeneous black. Face yellow, with a brownish tubercle, pale yellowish pubescent, vertex black, front with black hairs, in the female above the antennal-insertions each with a brownish spot (often not distinct); cheeks grayish black, in the male oral margin often black; antennae yellowish brown or brown, beneath paler, the arista yellowish brown, which being situated somewhat nearer to the base than on the other species. Thorax aeneous black, on the sides and a lateral tubercle before the scutellum dirty yellow, yellowish pubescent. Scutellum waxy dirty yellow, with pale yellowish hairs. Wings hyaline, with a yellowish tinge, veins fuscous, stigma and base dirty yellow. Calypteres and halteres pale-yellow. Abdomen in the male somewhat and in the

female distinctly broader than the thorax, with 3 yellowish bands or 3 pairs of lunules; in the male the first band widely interrupted, nearly triangular and reaches to the lateral margin with its upper part, the 2nd and 3rd in the middle on both margins more or less emarginated, sometimes distinctly interrupted, not reaching to the lateral sides, the hind margin of the 4th and 5th, except the black spot in the middle, yellow; hypopygium small, black, at the hind margin yellow; subhyaline, the 2nd, 3rd and 4th segments each with a black spot, the 3rd and 4th on the hind margins black; short yellowish and black pubescent; in the female the bands all interrupted, namely with 3 pairs of yellowish lunules, the first pair somewhat triangular and oblique, reaches to the lateral margin with its entire surface, the 2nd and 3rd pairs each at the inner end clavate and on the anterior margin somewhat concave, reaches to the lateral margin with its upturned apex and to the anterior margin with its enlarged part; venter with 4 black spots respectively on the 2nd, 3rd, 4th and 5th segments; pale yellowish pubescent, mingling a few short black hairs. Legs yellow, coxae, trochanter and the bases of the femora (in the male extended near to the middle), fuscous.

Length — ♂ 9.5 mm., ♀ 10 mm.

Hab. — Saghalien, Hokkaidō, Honshū, Shikoku, Kiushū, Formosa; China, Malay, E. India, Europe, Africa.

(*To be continued.*)

摘 要

Syrphus 屬に最も近き屬及び Syrphus 屬より新屬の分離したるもの分屬表下の如し。

1. 胸背兩側に黄條を有するもの... .. 2
 一胸背兩側に黄條を有せざるもの 4
2. 第三觸角節圓錐形, 第三縱脈は翅端の前方に開口す... .. 3
 一第三觸角節圓形, 第三縱脈は翅端に開口す... ..
 Xanthogramma
3. 第三觸角節は第一及第二節を合したるものより明かに短かきもの; 雄にては基部に齒狀突起を有せず。 ...Asarcina (p. 134)
 一第三觸角節は第一及第二節を合したるものより約三倍長し; 雄にては基部に一齒狀突起を有す。 ... Ischiodon
4. 第三觸角節圓形, 翅の横脈は中室の約五分の一の處にあるもの... .. 5
 一第三觸角節卵形, 翅の横脈は中室の約四分の一の處にあるもの... .. 7
 一第三觸角節圓錐形, 翅の横脈は中室の約三分の一の處にあるもの 9
5. 雌の頭頂は觸角間の顔幅の半より廣きもの... .. 6
 一雌の頭頂は觸角間の顔幅の半より狭きもの... Episyrrhus
6. 雄にては頭の方口吻狀に突出す。 ... Stenosyrphus
 一雄にては頭の方口吻狀に突出せず。 ... Mesosyrphus
7. 第三觸角節は甚だしく側扁; 翅の横脈は中室の約四分の一の處にあり Syrphus (p. 134)
 一第三觸角節は側扁ならず; 翅の横脈は中室の約三分の一の處にあり... .. 8
8. 端刺は第三觸角節の中央に近位し, 頭及額は甚だ大ならず。 Metasyrrhus (p. 147)
 一端刺は第三觸角節の基部に近位し, 頭及額は甚だ大なり... .. Catabomba (p. 145)
9. 端刺は第三觸角節の基部に近位し, 第三縱脈は稍端直なり。 10

- 一端刺は第三觸角節の中央に近位し、第三縦脈は甚だしく彎曲す *Didea* (p. 136)
10. 第三觸角節は側扁、端刺は觸角より長く、第四縦脈の末端に附屬脈を缺く... .. *Dideodes* (p. 140)
- 第三觸角節は側扁ならず、若くは背上にて少しく側扁なり、端刺は觸角と略同長... .. II
11. 第三觸角節は側扁ならず、長圓錐形、第四縦脈の末端に附屬脈を有す *Betasyrphus* (p. 143)
- 第三觸角節は背上にて側扁、短圓錐形、第四縦脈の末端に附屬脈を有せず *Dideopsis* (p. 142)

Asarcina 屬 (ナガヒラタアブ)

本邦に産するもの下の二種あり。

1. ナガヒラタアブ *Asarcina ericetorum* F.

産地—北海道、本州、四國、九州、臺灣。 (p. 135; pl. VI, fig. 1)

2. ハグロナガヒラタアブ *A. fumipennis* SACK.

産地—臺灣。 (p. 136)

種 の 分 類 表

1. 翅は褐色、胸背に褐色毛を生ず *fumipennis*
 — 翅は灰黄、胸背に黄色毛を生ず *ericetorum*

Didea 屬 (マルヒラタアブ)

本邦に産するもの下の三種あり。

1. マルヒラタアブ *Didea fasciata* MACQ.

産地—北海道(札幌)、本州(岐阜、京都)。 (p. 137)

2. カラフトマルヒラタアブ *D. sachalinensis* MATS.

産地—樺太(大谷)。 (p. 138; pl. VI, fig. 5)

3. オホマルヒラタアブ *D. japonica* MATS.

産地—樺太、本州(東京、京都、大阪)。 (p. 138; pl. VI, fig. 2)

尙此の他臺灣に *D. confrator* WIED. (p. 139) と稱する一種あれども果して *Didea* 屬に係るものなりや不明なり。

Dideodes 屬 (オホヒラタアブ)

本邦に産するもの下の三種あり。

1. **オホヒラタアブ** *Dideodes latus* COQ.
産地—本州, 九州。 (p. 140; pl. VI, fig. 3)
2. **台湾オホヒラタアブ** *D. formosanus* MATS.
産地—臺灣。 (p. 141)
3. **ツマキオホヒラタアブ** *D. lautus* COQ.
産地—本州, 九州。 (p. 142)

種の分類表

- | | |
|-----------------------|------------|
| 1. 稜状部及び腹部は黒色 … … … … | latus |
| — 稜状部及び腹部は黄色 … … … … | 2 |
| 2. 稜状部に黄毛を生ず … … … … | latus |
| — 稜状部に褐毛を生ず … … … … | formosanus |

Dideopsis 屬 (ナカグロヒラタアブ)

本邦に産するもの一種あり。

1. **ナカグロヒラタアブ** *Dideopsis aegrotus* F. (p. 143; pl. VI, fig. 4)
産地—臺灣 (埔里社, 恒春)。
翅に黒帯あるを以て他と容易に區別し得べし。

Betasyrphus 屬 (クロヒラタアブ)

本邦に産するもの下の一種あり。

1. **クロヒラタアブ** *Betasyrphus serarius* WIED.
産地—北海道, 本州, 四國, 九州, 沖縄, 臺灣。 (p. 144; pl. VI, fig. 6)
第二腹節に鉛色帯あるを以て容易に區別し得べし。

Catabomba 屬 (ムツボシヒラタアブ)

本邦に産するもの下の二種あり。頭及び額頗る大なるを以て、容易に區別し得べし。

1. **ムツボシヒラタアブ** *Catabomba lunata* WIED.
産地—本州 (日光), 九州 (熊本)。 (p. 145)
2. **コマバムツボシヒラタアブ** *C. komabensis* MATS.
産地—本州 (東京駒場)。 (p. 146; pl. VI, fig. 7)

種 の 分 類 表

1. 腹部の紋は細く、第一及第二紋は第二及第三節の中央に近位す… ……komabaensis
2. 腹部の紋は廣く、第一紋は第二節の後縁に近く、第二紋は前縁に近位す… ……lunata

Metasyrphus 屬 (ホシヒラタアブ)

本邦に産するもの下の六種あり。

1. ナミホシヒラタアブ *Metasyrphus frequens* MATS.
産地—北海道, 本州, 四國, 九州。 (p. 148; pl. VI, fig. 8)
2. カラフトホシヒラタアブ *M. karafutonis* MATS.
産地—樺太 (元宿, 大谷)。 (p. 148)
3. カハグチホシヒラタアブ *M. Kawaguchii* MATS.
産地—樺太 (元宿)。 (p. 149; pl. VI, fig. 10)
4. ホシヒラタアブ *M. arcuatus* FALL.
産地—北海道 (札幌)。 (p. 150)
5. フタホシヒラタアブ *M. corollae* F.
産地—樺太, 北海道, 本州, 四國, 九州, 臺灣。 (p. 151)
6. ホソホシヒラタアブ *M. stenopus* MATS.
産地—北海道 (札幌)。 (p. 151)

種 の 分 類 表

1. 雄腹部の黄帯は第一帯を除き遮断せらるゝものと遮断せられざるものとあり… …… 2
- 雄腹部の黄帯は全部遮断せらる… …… 3
2. 稜状部に黒毛と黄毛とを混生す… ……*frequens*
- 稜状部に黄毛を單生す… ……*corollae*
3. 腹部は明に胸部より遙に廣し… ……*karafutonis*
- 腹部は細く、胸部と同幅若くは少しく廣し… …… 4
4. 頬は黄褐, 雌の胸部は腹部より少しく細し… ……*arcuatus*
- 頬及び口縁は藍黒色, 胸部の第二紋は後縁にて黒毛を生ず。
… …… *Kawaguchii*
- 頬は灰黒, 口縁は上縁にて暗褐, 胸部第二紋は後縁にて黒毛を生ぜず… ……*stenopus*

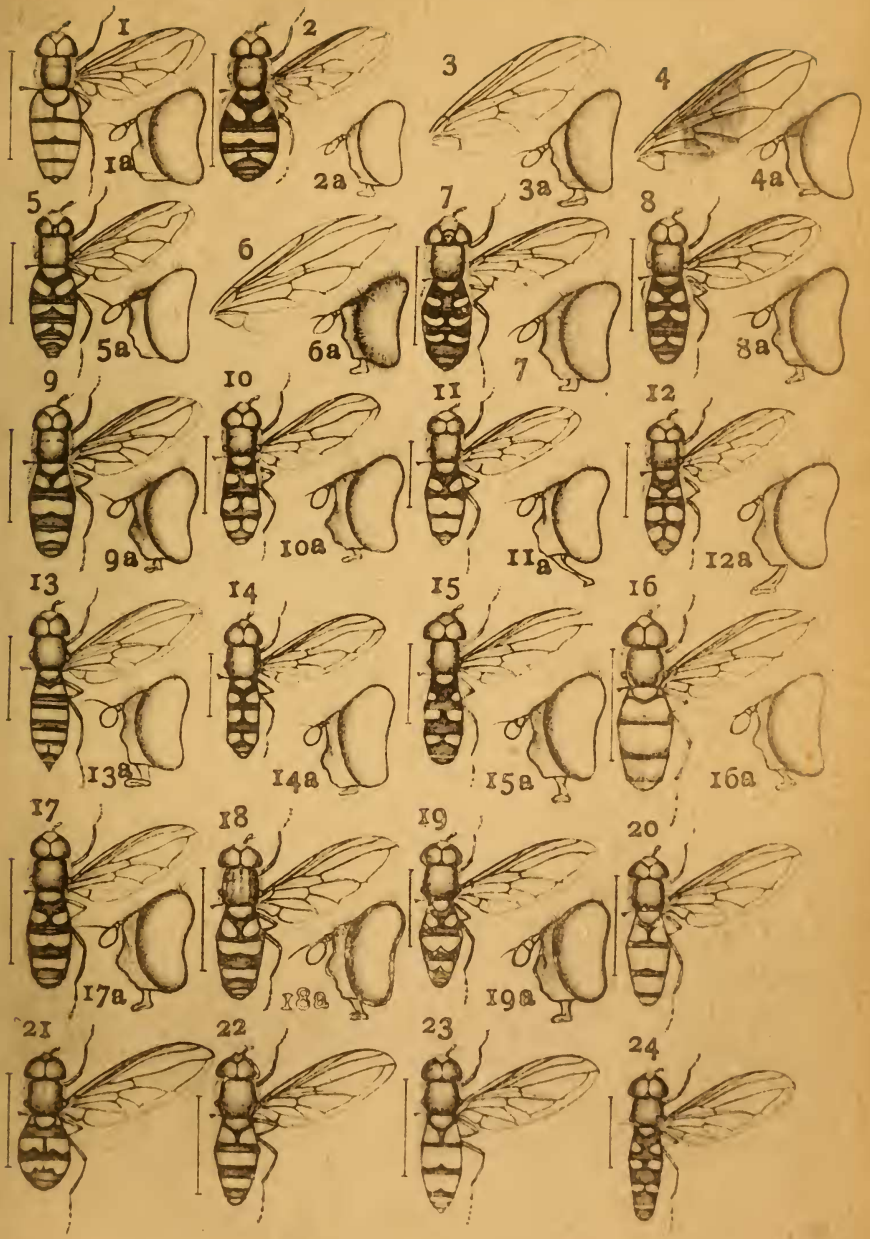
(以下次號)

Explanation of Plate VI.

第六版説明

- | | | | |
|--|-----------------------------------|-------------|----------|
| 1. <i>Asarcina ericetorum</i> F. | (^a Head 頭部
以下之ニ準ズ) | クチナガヒラタアブ | (p. 135) |
| 2. <i>Didea japonica</i> MATS. | | オホマルヒラタアブ | (p. 138) |
| 3. <i>Dideodes latus</i> COQ. | | オホヒラタアブ | (p. 140) |
| 4. <i>Dideopsis aegrotus</i> F. | | ナカグロヒラタアブ | (p. 143) |
| 5. <i>Didea sachalinensis</i> MATS. | | カラフトマルヒラタアブ | (p. 138) |
| 6. <i>Betasyrphus serarius</i> WIED. | | クロヒラタアブ | (p. 144) |
| 7. <i>Catabomba komabensis</i> MATS. | | コマバヒラタアブ | (p. 146) |
| 8. <i>Metasyrphus frequens</i> MATS. | | ナミホシヒラタアブ | (p. 148) |
| 9. <i>M. Hideonis</i> MATS. | | ヒデヲヒラタアブ | |
| 10. <i>M. Kawaguchii</i> MATS. | | カハグチホシヒラタアブ | (p. 149) |
| 11. <i>M. jezoensis</i> MATS. | | エゾホシヒラタアブ | |
| 12. <i>M. Kawamurae</i> MATS. | | カハムラホシヒラタアブ | |
| 13. <i>Episyrphus fallaciosus</i> MATS. | | ニホソヒラタアブ | |
| 14. <i>Mesosyrphus constrictus</i> MATS. | | アシグロヒラタアブ | |
| 15. <i>Eusyrphus cingulatus</i> MATS. | | シハヒラタアブ | |
| 16. <i>Syrphus (Macrosyrphus) okinawae</i> MATS. | | ヲキナハヲビヒラタアブ | |
| 17. <i>S. (Lasiophthicus) topiarius</i> MEIG. | | ケヒラタアブ | |
| 18. <i>S. (Syrphus) japonicus</i> MATS. | | ヤマトヒラタアブ | |
| 19. <i>S. (Parasyrphus) aeneostoma</i> MATS. | | クチグロヒラタアブ | |
| 20. <i>S. Shibakawae</i> MATS. | | シバカハヒラタアブ | |
| 21. <i>S. bilineatus</i> MATS. | | フチスヂヒラタアブ | |
| 22. <i>S. mikado</i> MATS. | | ミカドヒラタアブ | |
| 23. <i>Macrosyrphus aino</i> MATS. | | アイノヒラタアブ | |
| 24. <i>Stenosyrphus motodomariensis</i> MATS. | | モトドマリヒラタアブ | |

(頁数の記入なきものは次號に記載さるる筈)



T. OKUNI, del.

New and Little known Species of the Syrphidae of Japan.

日本産食蚜蠅科の新種